

SUPERIOR COURT OF ARIZONA  
MARICOPA COUNTY

CR2012-106182-001 DT

05/20/2013

JUDGE PRO TEM PHEMONIA L. MILLER

CLERK OF THE COURT  
Y. King  
Deputy

STATE OF ARIZONA

EDWARD G PAINE

v.

JASON ROBERT MAUSBACH (001)

LAWRENCE KOPLOW

MINUTE ENTRY

Following an Evidentiary Hearing on February 26, 2013, the Court took the Defendant's Motion In Limine Re: Retrograde Extrapolation under advisement. Prior to the Court issuing its ruling, the parties filed their Proposed Findings Of Fact And Conclusions Of Law on March 15, 2013, which were received by the Court on March 19, 2013. The Court has considered the initial motions and associated pleadings, the testimony and exhibits introduced at the evidentiary hearing, and the arguments of counsel. The Court has observed the demeanor of the witness while testifying and the following findings are based on the evidence as well as the Court's assessment of credibility:

The issue this Court must decide is whether a retrograde analysis, based solely on a defendant's time of driving and time of blood draw, is admissible under Arizona Rules of Evidence 702.

Brief background is instructive:

- Defendant was detained by law enforcement at 5:35 a.m. on January 28, 2012.
- Defendant was placed under arrest and charged with Aggravated DUI.
- Defendant's blood was drawn at 7:44 a.m.
- The blood draw was conducted approximately 2 hours and 9 minutes after the end of driving.

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- The State presented no evidence of an eating history for Defendant prior to being detained at 5:35 a.m.
- The State presented no evidence of an alcohol consumption history for Defendant prior to the time he was detained at 5:35 a.m.
- The State's criminalist, Ms. Kazanas, indicated that she made several assumptions when performing a retrograde extrapolation: defendant had stopped drinking, the BAC was valid; Defendant had reached his peak; Defendant was in the elimination phase and had an elimination rate of .01-.025; and Defendant was an average absorber of alcohol.
- Ms. Kazanas further testified that every person's elimination rate is different and that you can't know the rate of any one individual.
- Ms. Kazanas provided an opinion that a retrograde extrapolation could be performed without a drinking and eating history.
- During cross-examination, Ms. Kazanas had difficulty writing down and expressing the formula she used to calculate the retrograde extrapolation for the Defendant, when asked by defense counsel.
- During cross-examination, Ms. Kazanas admitted she did not use the Widmark formula to perform her retrograde extrapolation.
- Ms. Kazanas referred to several studies that supported her position that retrograde extrapolation is accepted in the scientific community, but relied heavily on the study performed by Dr. A.W. Jones. The study she frequently referred to was A.W. Jones: Evidence Based Survey (2010),
- Defense expert, Chester Flaxmayer, testified that a scientifically reliable retrograde extrapolation cannot be done without an adequate eating and drinking history. Mr. Flaxmayer's opinion was based on peer reviewed published works of Dr. A.W. Jones and Dr. Kurt Dubowski.
- Mr. Flaxmayer also testified that the true range of human absorption of alcohol can exceed 4 hours.
- Mr. Flaxmayer testified that the type of retrograde analysis the State was attempting to use was known as a "speculative retrograde". He went on to say that this type of retrograde analysis is not generally accepted in the scientific community and is not a scientifically reliable methodology.
- Defendant argues that the proposed retrograde extrapolation is speculative, unduly prejudicial, lacks foundation, accuracy, reliability, and is irrelevant pursuant to *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), Arizona Rules of Evidence 401, 403 and 702.
- The State's position is that it may prove a defendant's blood or breath alcohol concentration within 2 hours of the time of driving by testimony from a qualified criminalist, using a measurement of blood alcohol concentration taken more than 2 hours after driving, without any additional foundational elements, such as drinking or eating

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history. The State argues that the weight to be given to Defendant's blood test results is a determination that should be made by a jury, and not a court.

**CONCLUSIONS OF LAW**

Retroactive extrapolation is a process through which a "minimal alcohol elimination rate of .015 percent an hour is used to determine what a blood alcohol rate was at a specified time prior to the taking of a blood sample." *State v. Claybrook*, 193 Ariz. 588, 590, 975 P.2d 1101, 1103 (App. 1998).

Prior to January 1, 2012, Arizona supreme court, rejected any requirement that the trial court act as a gatekeeper of the reliability of expert testimony, by evaluating whether generally accepted scientific principles were applied correctly to the facts of the particular case. *State v. Van Adams*, 194 Ariz. 408, 984 P.2d 16 (1999). The supreme court declined to follow the standards set for in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786 (1993), reasoning that that questions about the accuracy and reliability of a witness' factual basis, data, and methods go to the weight and credibility of the witness' testimony and are questions of fact. *Id.*

As of January 1, 2012, Arizona has adopted the *Daubert* standards and amended Arizona Rules of Evidence (ARE) 702 to mirror the Federal Rules of Evidence 702. ARE 702 requires the trial court to determine whether the expert is proposing to testify to (1) scientific, technical, or other specialized knowledge that (2) will assist the trier of fact to understand or determine a fact in issue; (3) is based on sufficient facts or data; (4) is the product of reliable principles and methods; and (5) the expert has reliably applied the principles and methods to the facts of this case. The comment to the amendment now reads, "The amendment recognizes that trial courts should serve as gatekeepers in assuring that proposed expert testimony is reliable and thus helpful to the jury's determination of the facts at issue...." Trial courts must also consider whether the witness' conclusion represents an unfounded extrapolation from the data; *whether the witness has adequately accounted for alternative explanations for the effect at issue*; whether the opinion was reached for the purposes of litigation or as the result of independent studies; or whether it unduly relies on anecdotal evidence. *Gen. Elec. Co. v Joiner*, 522 L.S. 136, 146, 118 S. Ct. 512 (1997).

Here, the court must inquire into whether the proposed testimony is sufficiently relevant to the task at hand. *Daubert*, 509 U.S. at 597, 113 S.Ct. 2786. The court finds that retrograde extrapolation is relevant to whether Defendant was driving under the influence and whether there was a blood alcohol concentration above the legal limit within 2 hours of driving. The court further finds the analysis, if admissible, could assist the trier of fact to understand a fact in issue. Although relevant, the Court must also consider whether the evidence or testimony is reliable

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and admissible. Based on the steps enumerated in *Daubert*, the Court cannot find the State's expert testimony reliable. The Court's finding is based on, but not limited to, the following:

This court cannot find the State's retrograde analysis reliable. Ms. Kazanas clearly stated that she considered no other information other than the time of the draw and the time of the stop to complete the retrograde analysis. She testified that her analysis was purely based on assumptions. Her calculations did not take into account the unknowns. While not controlling in this case, the court finds the reasoning in *United States v. Tsosie*, 791 F. Supp. 2d 1099 (10<sup>th</sup> Cir. 2011) persuasive and is useful in this case. In *Tsosie*, the criminalist did not know the drinking and eating pattern or biographical information of the defendant. The Court allowed the retrograde analysis because it found that the expert analysis accounted for the known and unknown facts and gave the defendant the benefit of the doubt when the facts were not known. The Court in *Tsosie* went on to say that an expert's retrograde extrapolation analysis is admissible if it accounts for the available data and address unknown variables.

Here, no evidence was presented that Ms. Kazanas gave the defendant the benefit of the doubt or that her calculations accounted for the known and unknown facts. She assumed the defendant had reached his peak, was a normal drinker, and an average absorber, without taking into account any other variables. Ms. Kazanas often mentioned scientific literature authored by Dr. Alan Wayne (AW) Jones. However, in Defense Exhibit 2, Dr. Jones points out that "requests to back extrapolate a suspect's BAC from the time of the sampling to the time of driving are often made, but this remains a dubious practice, owing to many variables and unknown involved." Dr. Jones goes on to state that "in a typical impaired driving trial, only a single measurement of BAC is usually available making it very difficult to engage in retrograde calculations with sufficient certainty for criminal prosecution." Furthermore, the State attached to its Proposed Findings of Facts and Conclusions of Law a copy of the Robert F. Borkenstein Course on Alcohol and Highway Safety: Time-Of-Test DUI Laws vs. BAC Extrapolation. Ms. Kazanas testified that she attended The Borkenstein School. The Borkenstein course teaches that "a particular unacceptable form of BAC extrapolation is Speculative Retrograde Extrapolation. It is simply the *wholly-speculative* process-unsupported by measured and known particulars-of adding to a post-event alcohol test result the produce of a time interval and an assumed linear blood alcohol elimination rate of 0.015 or another assumed rate." The Defense's expert agreed that retrograde extrapolation performed by the State is "speculative retrograde".

Since the adoption of *Daubert*, Arizona appellate courts have not decided whether a retrograde analysis, based solely on a defendant's time of driving and time of blood draw, is admissible. However, this issue has been decided by other jurisdictions, who adopted, prior to January 1, 2012, the *Daubert* standards. This issue was decided by the Texas Criminal Appellate Court in *State v. Mata*, 46 S.W. 3d 902, (Texas Crim. App. 2001) and *State v. Armstrong*, 267

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P.3d 777 (Nevada, 2011). This Court finds these cases very persuasive and cites to them for that reason.

The *Mata* court held that the trial court erred in admitting retrograde BAC extrapolation testimony in the DUI prosecution because the State failed to prove by clear and convincing evidence that the expert witness testimony was reliable. The court, however, held that DUI retrograde extrapolation testimony can be reliable if certain factors are known. The Court stated,

“We believe that the science of retrograde extrapolation can be reliable in a given case. The expert's ability to apply the science and explain it with clarity to the court is a paramount consideration. In addition, the expert must demonstrate some understanding of the difficulties associated with a retrograde extrapolation. He must demonstrate an awareness of the subtleties of the science and the risks inherent in any extrapolation. Finally, he must be able to clearly and consistently apply the science. The court evaluating the reliability of a retrograde extrapolation should also consider (a) the length of time between the offense and the test(s) administered; (b) the number of tests given and the length of time between each test; and (c) whether, and if so, to what extent, any individual characteristics of the defendant were known to the expert in providing his extrapolation. These characteristics and behaviors might include, but are not limited to, the person's weight and gender, the person's typical drinking pattern and tolerance for alcohol, how much the person had to drink on the day or night in question, what the person drank, the duration of the drinking spree, the time of the last drink, and how much and what the person had to eat either before, during, or after the drinking. Obviously, not every single personal fact about the defendant must be known to the expert in order to produce an extrapolation with the appropriate level of reliability. As the Kentucky Supreme Court has recognized [in *Commonwealth v. Wirth*, 936 S.W.2d 78 (Ky., 1996)], if this were the case, no valid extrapolation could ever occur without the defendant's cooperation, since a number of facts known only to the defendant are essential to the process. If the State had more than one test, each test a reasonable length of time apart, and the first test were conducted within a reasonable time from the time of the offense, then an expert could potentially create a reliable estimate of the defendant's BAC with limited knowledge of personal characteristics and behaviors. In contrast, a single test conducted some time after the offense could result in a reliable extrapolation only if the expert had knowledge of many personal characteristics and behaviors of the defendant. Somewhere in the middle might fall a case in which there was a single test a reasonable length of time from the driving, and two or three personal characteristics of the defendant were known to the expert. We cannot and should not determine today the exact blueprint for reliability in every case. Suffice it to say that the factors must be balanced.”

Here, Ms. Kazanas obvious inexperience in this area showed while testifying. Her inexperience prevented her from explaining the science to the Court with any clarity. She could not demonstrate an understanding of the difficulties associated with a retrograde extrapolation

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nor could she demonstrate an awareness of the subtleties of the science and the risks inherent in any extrapolation. Ms. Kazanas had difficulty writing down and expressing the formula she used to calculate the retrograde extrapolation for the Defendant. She admitted that she did not use the Widmark formula to perform her retrograde extrapolation. The Court finds it very difficult to believe her testimony. In this case, there was one test of Defendant's BAC and it occurred over two hours after the alleged offense. This amount of time and the fact that the State's criminalist did not know one single personal characteristic of the defendant, weighs against the finding of reliability. Even the defense's expert indicated that to find retrograde extrapolation reliable more information must be known about the Defendant. Like in *Mata*, this Court's ruling is not that every single personal fact about the defendant must be known to the expert in order to produce an extrapolation with the appropriate level of reliability. However, in this case and the others decided by this Court, the State produced no evidence, other than the time of driving and the time of the blood draw. This information alone is insufficient for a finding of reliability.

In *Armstrong* the defendant was charged with driving under the influence causing death and/or substantial bodily harm under two theories of liability: (1) he was under the influence of intoxicating liquor or (2) had a concentration of alcohol of .08 or more. Defendant was involved in a collision which occurred at 1:30 a.m. A single blood draw was taken at 3:51 a.m., more than two hours after the collision. *Id.* The defendant filed a pretrial motion to exclude the blood alcohol test result, alleging his blood was drawn outside the two hour window and that the retrograde extrapolation that the State would have to use to determine his blood alcohol level at the time he was driving was unreliable and therefore irrelevant and unfairly prejudicial. *Id.* The State opposed the motion, arguing amongst other things, that any variables in retrograde extrapolation go to the weight of the evidence rather than its admissibility. *Id.* The court first determined whether the retrograde extrapolation evidence was relevant to the issue of driving under the influence or had a blood alcohol concentration above the legal limit at the time of driving. *Id.* The court found that it was relevant. *Id.* The court then examined whether the evidence was prejudicial. *Id.* The court's unfair prejudice centered on the many unknown variables in the retrograde extrapolation calculation coupled with the reliance on a single blood sample. *Id.* The experts who calculated defendant's estimated alcohol level looked at factors attributed to the "average" person. *Id.* The factors included: defendant's admission to the number of beers he consumed, defendant's weight, the time of the blood draw and the time of the accident. *Id.* There was no evidence concerning defendant's age or height, the type and amount of food in his stomach, his regular drinking pattern, or his emotional state after the collision. *Id.* The Court held that:

"Achieving a reliable retrograde extrapolation calculation requires consideration of a variety of factors: (1) gender, (2) weight, (3) age, (4) height, (5) mental state, (6) the type and amount of food in the stomach, (7) type and amount of alcohol consumed, (8) when the last elapsed time between the first and last drink consumed, (9) drinking pattern at the relevant time, (10) elapsed time between the first and last drink consumed, (11) time elapsed between the last

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drink consumed and the blood draw, (12) the number of samples taken, (13) the length of time between the offense and the blood draws, (14) the average alcohol absorption rate, and (15) the average elimination rate.” The Court went on to say that not every personal fact about the defendant must be known to construct a reliable extrapolation, but rather those factors must be balanced. *Id.*

The *Armstrong* court concluded that the admission of the retrograde extrapolation, insufficiently tied to individual factors necessary to achieve a reliable calculation, potentially invites the jury to determine defendant’s guilt based on emotion or an improper ground. Although relevant, the probative value of the extrapolation could be sufficiently outweighed by this danger of unfair prejudice to preclude its admission. *Id.*

Unlike the experts in *Armstrong*, Ms. Kazanas only considered the time of the blood draw and the time of driving when calculating retrograde extrapolation. She used the elimination range and the absorption rate of an average person without considering any other variables. There were more facts known about the defendant in *Armstrong* than in this case, yet the Supreme Court in *Armstrong* held that the information known to do the retrograde was insufficient. Ms. Kazanas conceded that her calculations were based on assumptions. Like the Court in *Armstrong*, this Court finds the admission of the retrograde extrapolation is *insufficiently* tied to individual factors necessary to achieve a reliable calculation and would potentially invite the jury to determine Defendant’s guilt based on emotion or on improper ground. The retrograde extrapolation is unreliable and highly prejudicial. Though relevant, the probative value is outweighed by the prejudicial effect. Therefore,

IT IS ORDERED granting the Defendant’s Motion In Limine.

IT IS ORDERED precluding the retrograde extrapolation, and any testimony that the defendant’s BAC was above the legal limit within 2 hours of driving.

IT IS FURTHER ORDERED setting a Status Conference on 06/07/2013 at 8:30 a.m. before this division.

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IT IS ORDERED signing this minute entry as a formal written order of the Court.

/s/ JUDGE PRO TEM PHEMONIA L. MILLER

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JUDICIAL OFFICER OF THE SUPERIOR COURT